
BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Graham, W Vallen	POSITION TITLE Postdoctoral Associate		
eRA COMMONS USER NAME (credential, e.g., agency login) vgraham			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
University of Illinois, Urbana, IL	B.S.	6/01	Animal Sciences
University of Illinois, Urbana, IL	M.S.	6/03	Animal Sciences
University of Chicago, Chicago, IL	Ph.D.	6/10	Mol. Path. and Mol. Med.
The Rockefeller University, New York, NY	Postdoc.	Present	Mol. Biol. and Biochem.

A. Personal Statement

The overall goal of my research is to understand the molecular underpinnings of human disease and exploit unique factors for therapeutic development. In pursuit of these goals, I have trained in laboratories that have sought to understand molecular pathophysiology. During my masters, I worked on redox-driven intestinal cell differentiation and developed a bioinformatics tool for proteomic comparison. This work was in line with the lab's goals of understanding the effects of microbiota on mucus production during intestinal disease. During my PhD, I studied the molecular implication of a specific isoform of a kinase involved in epithelial barrier function. Once I found that this protein isoform was specific for the molecular events in regulating the intestinal barrier, I exploited the extra protein domain in this kinase and developed small molecule drugs that prevent protein-protein interaction at the subcellular site of action. These drugs prevented disease in our tissue culture models and in animal models of intestinal barrier leakiness and disease. During my postdoc, I have carried my training into a new avenue of molecular medicine and am studying the unique phenomenon of an amyloid capping protein. I hope to discover the molecular mechanisms of this phenomenon and develop therapeutic strategies that can be used in *in vitro* and *in vivo* models of amyloid diseases.

B. Positions and Honors

Positions and Employment

1999-2001 Undergraduate Research Assistant, Department Animal Sciences, University of Illinois
2000 Research Intern, Laboratoire de Biologie, Université Blaise Pascal
2001- 2003 Graduate Research Assistant, Department Animal Sciences, University of Illinois
2003-2004 Research Technologist, Department of Pathology, University of Chicago
2004-2010 Predoctoral Research Assistant, Department of Pathology, University of Chicago
2011- Postdoctoral Research Fellow, Laboratory of Molecular Biology and Biochemistry, Rockefeller University, New York, NY.

Other Experience and Professional Memberships (selected)

Laboratory Investigation, *ad hoc* reviewer, 2007. American Gastroenterological Association, member. American Physiological Society, member. American Association for the Advancement of Science, member.

Honors

Colgate-Palmolive Undergraduate Research Award (2000); Graduate College Travel Grant (2003); Gamma Sigma Delta Academic Honor Society (2003); FASEB Travel Award (2007); Doolittle-Harrison Fellowship (2007); Takeda Pharmaceutical Research Award (2007); Robert Priest Merit Award (2007); Biological Sciences Division Competitive Travel Award (2008); Platform Presentation Honorarium at Experimental Biology (2008); Carolyn tum Suden/Francis A. Hellebrandt Professional Opportunity Award (2008); Digestive Diseases Week poster of distinction (2009)

C. Peer-reviewed Publications

1. Deplancke, B., Finster, K., Graham, W. V., Collier, C. T., Thurmond, J. E., and Gaskins, H. R. Effects of Sulfate-supplemented Drinking Water on Intestinal Sulfate and Hydrogen Sulfide Concentrations and the Microbiota of the Mouse Gastrointestinal Tract. *Experimental Biology and Medicine* 228(4):424-33 (2003). PMID: 12671187
2. Conour, J. E., Graham, W. V., Gaskins, H. R. A combined in vitro/bioinformatic investigation of redox regulatory mechanisms governing cell cycle progression. *Physiol Genomics*. 18(2):196-205 (2004). PMID: 15138307
3. Graham, W. V., Tchong, D. K., Shirk, A. L., Attene Ramos, M., Welge, M. E., and Gaskins, H. R. PhyloMAT: an automated protein motif analysis tool for phylogenomics. *J Proteome Res*. 3(6):1289-91 (2004). PMID: 15595740
4. Wang, F., Graham, W. V., Wang, Y., Turner, J. R. IFN γ and TNF α synergize to induce intestinal epithelial barrier dysfunction by upregulating MLC kinase expression *Am J Pathol*. 166(2):409-19 (2005). PMID: 15681825
5. Russo, J. M., Florian, P., Shen, L., Graham, W. V., Tretiakova, M. S., Gitter, A. H., Mrsny, R. J., and Turner, J. R. Distinct temporal-spatial roles for rho kinase and myosin light chain kinase in epithelial purse-string wound closure. *Gastroenterology*. 128(4):987-1001 (2005). PMID: 15825080
6. Owens, S. E., Graham, W. V., Siccardi, D., Turner, J. R., Mrsny, R. J. A strategy to identify stable membrane-permeant peptide inhibitors of myosin light chain kinase. *Pharm Res*. 22(5):703-9 (2005). PMID: 15906163
7. Graham, W.V. The role of β 2 integrin subsets in intestinal disease: a sticky problem *Laboratory Investigation*. 86, 323–325 (2006).
8. Reschly, E. J., Spaulding, C., Vilimas, T., Graham, W. V., Brumbaugh, R. L., Aifantis, I., Pear, W. S., Kee, B. L. Notch1 promotes survival of E2A-deficient T cell lymphomas through pre-T cell receptor-dependent and -independent mechanisms. *Blood*. 107(10):4115-21 (2006). PMID: 16449526
9. Hu, Z., Wang, Y., Graham, W. V., Su, L., Musch, M. W., Turner, J. R. MAPKAPK-2 is a critical signaling intermediate in NHE3 activation following Na⁺-glucose cotransport. *J Biol Chem*. 281(34):24247-53 (2006). PMID: 16793766
10. Graham, W. V., Wang, F., Clayburgh, D. R., Cheng, J. X., Yoon, B., Wang, Y., Lin, A., Turner, J. R. Tumor necrosis factor-induced long myosin light chain kinase transcription is regulated by differentiation-dependent signaling events. Characterization of the human long myosin light chain kinase promoter. *J Biol Chem*. 281(36):26205-15 (2006). PMID: 16835238
11. Wang, F., Schwarz, B. T., Graham, W. V., Wang, Y., Su, L., Clayburgh, D. R., Abraham, C., Turner, J. R. IFN-gamma-induced TNFR2 expression is required for TNF-dependent intestinal epithelial barrier dysfunction. *Gastroenterology*. 131(4):1153-63 (2006). PMID: 17030185
12. Graham, W. V. Too much TNF? Drink your milk or FLIP out! *Laboratory Investigation*. 87, 518–519 (2007).
13. Graham, W. V., Marchiando, A. M., Shen, L., Turner, J. R. No static at all: A new perspective on molecular architecture of the tight junction. *New York Academy of Sciences* 1165:314-322 (2009). PMID: 19538322
14. Marchiando, A. M., Graham, W. V., Turner, J. R. Epithelial Barriers in Homeostasis and Disease. *Annual Review of Pathology* 5:119-144 (2010). PMID: 20078218
15. Marchiando, A. M., Shen, L., Graham, W. V., Weber, C. R., Schwarz, B. T., Austin, J. R., Raleigh, D. R., Guan, Y., Watson, A. J. M., Montrose, M. H., and Turner, J. R. Caveolin-1-dependent occludin endocytosis is required for TNF-induced tight junction regulation in vivo, *Journal Cell Biology* 189:111-126 (2010). PMID: 20351069
16. Marchiando, A. M., Shen, L., Graham, W. V., Edelblum, K. L., Duckworth, C. A., Guan, Y., Montrose, M. H., Turner, J. R., Watson, A. J. The epithelial barrier is maintained by in vivo tight junction expansion during pathologic intestinal epithelial shedding. *Gastroenterology*. 140(4):1208-1218 (2011). PMID: 21237166
17. Graham, W. V., Magis, A. T., Bailey, K. M., Turner, J. R., Ostrov, D. A. Crystallization and preliminary X-ray analysis of the human long myosin light chain kinase 1-specific domain IgCAM3. *Acta Crystallogr Sect F Struct Biol Cryst Commun*. 67:221-3 (2011). PMID: 21301090